

Notes and News

PROTHALLIA OF CAMPTOSORUS

Readers of the JOURNAL have not found much in its pages about the prothallial stage of any sort of fern. A reference to a paper on this stage of fern life may therefore be of interest, especially as it deals with the prothallia of one of our most interesting and less common species, the walking fern.

Under the title "Resistance of the prothallia of *Campptosorus rhizophyllus* to dessication,"¹ F. L. Pickett discusses a series of experiments carried on with the prothallia of this fern which go a long way toward explaining the ability of the walking fern to grow and thrive in situations frequently subject to extreme drouth. These experiments are also suggestive as regards the maintenance of other ferns which frequent dry situations like *Pellaea atropurpurea*, which seems often to like best the most exposed cliffs.

Briefly the experiments were as follows: Prothallia of this species were grown from spores and then were subjected to periods of artificial drying, varying from a few days up to two months. It was found that vigorous prothallia could stand continous drying of more than two months and still be able to resume growth and to produce the sporophyte stage when moisture was again applied. A difference was noted however, as regards the behavior of the prothallia in direct sunlight and in diffused light, the latter being much more favorable.

Some of the details noted incidentally are also of interest. For example, spores taken from leaves collected October 26th, and sown November 22nd, germinated by December 17th. Under normal moist conditions those in direct sunlight showed more rapid growth at

¹Bull Torrey Club 40: 641-645. 15 Nov. 1913.

this time than those in diffused light. It was found that the spores of this species germinate irregularly. Thus a sowing of spores examined twelve weeks after sowing showed all stages from mature prothallia down to spores just germinating. Also leaves collected in March furnished spores which germinated well in cultures.

It may be noted finally that the writer of the article under review has further experiments of the same sort now under way and would undoubtedly appreciate the sending of spore-bearing leaves of any ferns frequenting dry situations, of *Pellaeas*, species of *Cheilanthes*, and any others. Such specimens may be sent to him at Pullman, Wash.

R. C. B.

NOTES ON ISOËTES

During the spring of 1909, I collected some *Isoëtes* in a small, artificial pond, back of Stanford University, University, California.

With some other ferns, I sent a sheet of this *Isoëtes* to the Society Herbarium. Mr. Hopkins was interested in the plant and I sent all the material I had to him. The specimens were collected too early to be in the best condition, but after a careful study of the plants, Mr. Hopkins gives the following data:

Number of plants examined, 17. Number of leaves per plant, 17; largest number on one plant, 30; smallest number, 8. Length of leaves, 4-15 inches. Stomata abundant in the upper 2-3 of the leaf. Velum small, covering $\frac{1}{4}$ or less of sporangium. Plants monocious, microspores not plentiful, in fact, they were found in one sporangium only of the three plants whose spores were examined. Peripheral bundles present and seemingly variable. Trunk distinctly bilobed. Macrospores 368, 386, 368, 368, 368, 504, 386, 386, 368, 522, microns. Microspores 28, 26, 30, 24, 24, 28, 24, 24, 24, 24, 24, 24, 26, 28, 28, 26, 25, microns.

ISOETES ENGELMANNI A. Br.

The artificial pond, "Mud Lake," is one used for irrigation purposes so the level is not constant. The plants when collected were growing under several inches of water—a few of the plants having their tips near the surface. An attempt to get more of this plant will be made the coming summer.

The *Polystichums* listed from Noyo River and Mt. Shasta, have been presenting a good many questions to me, and to gain assistance in answering these questions I have sent the entire lot to Mr. Hopkins. He says, "the material is certainly very interesting and I have been looking at it with longing eyes for some time."

H. H. TRACY.

NOTES ON MAINE FERNS

I find it interesting, in connection with Mr. Knowlton's list,¹ to recall some collecting experiences of ten years ago in Auburn, Me. Auburn is in Androscoggin County, which touches Franklin on the south. Being nearer the coast it lacks several northern and mountain species such as *Polystichum Braunii*, *Aspidium Goldianum*, and *Lycopodium sabinaefolium*. Perhaps the fact that I did not find *Woodwardia virginica* and *Lycopodium inundatum* is accounted for by the rather narrow range of my explorations. I had one good station for *Phegopteris hexagonoptera*, one for *Asplenium platyneuron*, one or two for *Selaginella rupestris*, and several for *Asplenium Trichomanes* and *Woodsia ilvensis*.

One plant of frequent occurrence in Auburn surely will some day be added to the Franklin County list. That is *Botrychium simplex*. It was found in pastures and sterile fields, usually associated with *B. ramosum*.

Sixty miles west of Franklin County, in Vermont is a region much like the Farmington country where

¹ FERN JOURNAL 4. 57.

Athyrium angustifolium is an occasional inhabitant of the rich woods. It would interest me to hear a good reason why this fern that is scattered all the way from Missouri should reach a sudden limit in northeastern Vermont.

AUBURNDALE, MASS.

E. J. WINSLOW.

NOTE ON EATON'S FERNS OF NORTH AMERICA

From correspondence it has been discovered that not a few copies of Eaton's Ferns of North America are imperfect. Some have one or more plates lacking, while others have duplicate plates. This note is published to give members and others owning copies of this work an opportunity to perfect them. Look the plates over carefully, they are not always arranged in numerical order, and see if you have them all and if you have duplicates of any of them. There should be 81. Drop me a line and let me know the result of your investigation. If your copy is perfect I should be glad to know it. If you need any plate or plates give me the numbers and if you have duplicates tell me how much you will sell them for. In this way it is hoped that some of us may be able to obtain missing plates and perfect our copies.

FRED G. FLOYD.

325 PARK ST., WEST ROXBURY, MASS.

THE FERN AS A STATE FLORAL EMBLEM

Unlike many foreign countries, the United States has no universally recognized floral emblem, although some of the States have legally adopted certain flowers and others have attempted unsuccessfully to do so. The latest State to agitate the question is Pennsylvania, where a bill to make the daisy the state flower was last year vetoed by the Governor. Since that time one of our members, Mr. J. G. Scott, has been actively engaged

in a campaign to have "The Fern" legally created the state emblem. In spite of many good arguments in its favor, this proposition has been opposed by various citizens who prefer the mountain laurel, and seems to have met defeat in the first encounter, the House of Representatives having recently passed a bill naming the laurel as the state flower.

American Fern Society

MANILA, P. I., SEPTEMBER 12, 1914.

MR. L. S. HOPKINS,
Curator of Herbarium,
American Fern Society,
Kent, Ohio.

MY DEAR MR. HOPKINS:

The fact that I have never made a contribution to the herbarium of the Fern Society has long been a source of trouble to my conscience and, as I look over the last annual report of the Curator, I come to the conclusion that there must be many more members with a troubled conscience or else many members without any at all.

With our large membership it seems to me that it would be a very easy matter to build up a good representative collection of the ferns of the United States simply by each member going through his duplicates and contributing one set and in making collections, to add one more for the Society.

As I am not in the "Mother Country," I cannot help along that line, but decided some time ago that "our colonies should be represented," so I have taken out one set of my duplicates and as a result I am sending you, under registered mail, 500 specimens as my contribution; these are practically all Philippine material, but in order to make the set up to an even 500 I had to add some odds and ends from China, Japan, and North Wales.